

Applicant: Qingshuang Chen

Personal statement

I have dreamed of being an outstanding electrical engineer since the last year of middle school, when I first developed a great interest in electricity in a physics course, thanks to an inspiring series of experiments, conducted by our instructor. Now as a senior student of electrical engineering in Purdue University, I have come closer to my goal. In order to go farther, I am applying Purdue ECE graduate program to continue my studying in this area.

During the summer after my junior year, I participated in Purdue summer undergraduate research program which introduce me to the world of engineering research. I worked with Professor Peter Bermel on thermophotovoltaic (TPV) power systems. After I established an understanding of how the TPV system works, we developed an online simulation tool which freely available through nanoHUB.org that allows one to simulate and optimize TPV performance on a system level, freely available online via <https://nanohub.org/tools/tpvtest>. I've also learned that research is often very challenging, with many obstacles arising unexpectedly. One of the problems which took me couple days to figure it out was reconciling the units for one of the parameters when connecting two pieces of code to one another. I solved this problem independently by carefully read though documentations and papers related to the algorithm and compare with my code. Finally, I got the correct result. From this experience, I understood that every slight mistake could lead result far away from expectation and I realized that research requires great patience and effort.

Working with professors and research team is a good chance for me to learn from them, not only the knowledge but also studying strategies and the attitude toward research. I gained a lot of research experience in this team, it surprised me to learn how many ways that we could analyze data. In summary, this experience greatly increased my interest in thermophotovoltaics and new energies, and I would like focus on this area in graduate studies to make more substantial contributions in this important field going forward.

On a more personal note, as a Boiler maker, I am proud of Purdue and I am glad that I have spent four years of undergraduate life here. The academic atmosphere is rigorous in Purdue, and is supported by high-quality teaching. The combination has inspired me to establish good study habits. I believe the prestigious scholars and plentiful resources in Purdue will help me achieve my academic and research goals, as discussed above. Now, I am an assiduous young woman with strong self-control and great teamwork experience. I believe those characteristics will lead me to succeed in my future research.